

# (19)The Korean Intellectual Property Office (KR) Unexamined Patent Application (A)

(51) Int. Cl. G

B03C 3/45

|                    |   |
|--------------------|---|
| Application No     | 10-2002-0016056                                   |
| Application Date   | 2002-03-25  |
| Publication No     | KR2003-0077120.                                   |
| Publication Date   | 2003-10-01  |
| Agent              | Su-Jin Kim  |
|                    | Ui-Seop Yoon                                      |
| Inventor           | Ju-Hyeon Seo                                      |
|                    | Jeong-Bok Lee                                     |
|                    | Seong-Hwan Kim                                    |
| Applicant          | Ju-Hyeon Seo                                      |
|                    | Jeong-Bok Lee                                     |
|                    | Seong-Hwan Kim                                    |
| Examination        | Requested   |
| Title of Invention | anion air cleaner use in titanium collector-plate |



## Abstract

The invention relates to the anion air conditioning system in which the dust collecting plate is equipped. And about the air cleaner capable of use with the wall mounted type the location of the air inlet port is diversified the dust collecting plate and negative plate of the air cleaner are formed into the titanium, and with the ceramics, and the activated charcoal and conductivity graphite layer being formed on the surface and lengthening the lifetime, the production of the ozone (O<sub>3</sub>) is suppressed.

The dust collecting plate and negative plate are formed with the titanium material quality as to the main body, consisting of the invention relates to the front side case and rear case for this and the electronic circuit part, controlling all supplied inside the main body and the negative plate which is equipped in the output end of the electronic circuit part and generates the minus voltage and the air cleaner consisting of the dust collecting plate which is equipped in the negative plate and generates the negative ion. And the intensity of infestation of the ozone generated in the activated charcoal coating layer, the dust collecting plate and the negative plate collecting the ceramic coating layer, emitting the far infrared rays to the surface of the dust collecting plate and the odor molecule included in airborne is reduced to. It is characterized that the conductivity graphite layer increasing the intensity of infestation of the deionized water ion is formed.

Accordingly, the anion air conditioning system using the titanium dust collecting plate according to the invention has the effect that the dust collecting plate and the negative plate used for the air cleaner are formed into the titanium material and the production of the ozone is to the utmost suppressed. The ozone has the effect forming the ceramics, and the activated charcoal and conductivity graphite layer on the exterior of the negative plate and dust collecting plate and can prevent the oxidation of the negative plate and dust collecting plate. And

the location of the inlet in which the moreover polluted air is inhaled is altered and it is usable, the various the interior effect can be created through the wall mounted type.



Representative Drawing(s)

Fig. 3



Description

#### ■ Brief Explanation of the Drawing(s)

Figure 1 is a perspective view showing the outer shape of the air cleaner according to prior art.

Figure 2 is a cross-sectional view showing the internal fabric of the air cleaner according to prior art.

Figure 3 is a perspective view showing the anion air conditioning system using the titanium dust collecting plate according to the invention.

Figure 4 is an example diagram showing the dust collecting plate withdrawal condition of the anion air conditioning system using the titanium dust collecting plate according to the invention.

Figure 5 is a cross-sectional view showing the dust collecting plate of the anion air conditioning system using the titanium dust collecting plate according to the invention.

The cross-sectional view showing the air stream state of the anion air conditioning system using the titanium dust collecting plate according to the fig. 6 silver the invention.

The description • of the denotation about the main part of • drawing.

100: air cleaner 110: front side case.

112: discharge hole 114: intake cavity.

120: rear case 124: inducing path.

130: dust collecting plate 132: titanium.

134: ceramic coating layer 136: activated charcoal coating layer.

138: conductivity graphite layer 140: negative plate.

142: anode pin.

## ■ Details of the Invention

### ■ Purpose of the Invention

#### ● The Technical Field to which the Invention belongs and the Prior Art in that Field

The invention relates to the anion air conditioning system in which the dust collecting plate is equipped. And more specifically, it is about the air cleaner capable of use with the wall mounted type the location of the air inlet port is diversified the dust collecting plate and negative plate of the air cleaner are formed into the titanium, and with the ceramics, and the activated charcoal and conductivity graphite layer being formed on the surface and lengthening the lifetime, the production of the ozone (O<sub>3</sub>) is suppressed.

Generally, the anion air conditioning system forms the anion generating part on the output end of the electronic circuit part which it comprises in order to output the low voltage as the apparatus which purifies the air while generating the negative ion to the high voltage. It is the indoor air pure with the negative ion which accordingly is generated. And the dermal active, resistivity, fine piece of work dragon, control of autonomic nervous system, the blood purification action etc of the cell which the negative ion has is used.

Accordingly, referring to the figure it illustrates.

Figure 1 is a perspective view showing the outer shape of the air cleaner according to prior art. Figure 2 is a cross-sectional view showing the internal fabric of the air cleaner according to prior art.

As shown in the figure, bracket installed at the inner side of the back case (10) the electronic circuit part (non illustration) outputted is the supplied low voltage comprised of the high voltage inside the main body (1) the main body (1) formed with the front side case (20) in which the back case (10), in which the air inducing cavity (12) in which atmosphere is inflowed is formed and the discharge hole (22) in which the clean air and negative ion are ejected are formed is prepared, the negative plate (40) of multi-stage is installed as the generating high voltage point generating the minus high voltage to the boosted output.

And a plurality of anode pins (41) is formed with the forward direction of the negative plate (40). The dust collecting plate (50) in which a plurality of through-holes (51) is formed the forward direction of the anode pin (41) is faced and it is equipped. The sharp discharge hole (22) of the through-hole (51) of the end part of the anode pin (41) and dust collecting plate (50) and front side case (20) are installed at the location which is mutually in accord with.

If the anion air conditioning system composed like this way authorizes the predetermined power source, the negative voltage hangs on the negative plate (40). The electronics having the negative electricity is released with the high energy process from the sharp end part of the anode pin (41) with the energy of the extent causing the ionization at high speed and it collides with the molecule of airborne and the negative ion is formed. The negative ion is ejected through the discharge hole (22) of the front side case (20).

In this process, it has the dust collection effect which removes the fine dust among the air by being adhered to the f adhered to the dust collecting plate (50) in which the fine dust flowed in through the air injection hole (12) with the air has cathode and having anode, and the neighboring of a plurality of through-holes (51) formed in the dust collecting plate (50).

But there is a problem that the problem that the micromolecule included among the air or the minute dusts are adhered to the dust collecting plate (50) and the dust collecting plate (50) and anode pin (51) are oxidized according to the long term usage box and the lifetime is shortened has the air cleaner according to the prior art as described above while performing the air clean task. And the ozone (O<sub>3</sub>) of the large amount is generated in moreover, the dust collecting plate (50) according to prior art and negative plate (40) with the ionization caused of the electronics and rather it is injurious to the human body.

#### ● The Technical Challenges of the Invention

The invention relates to the titanium material the dust collecting plate which to solve problems described in the above, is devised, and used for the air cleaner. And negative plate. And it forms and the production of the ozone (O<sub>3</sub>) is to the utmost suppressed. The ceramics, and the activated charcoal and conductivity graphite layer are formed on the exterior of the negative plate and dust collecting plate and the oxidation of the negative plate and dust collecting plate is prevented. It has the anion air conditioning system altering the location of the inlet in which the polluted air is inhaled and uses the usable titanium dust collecting plate through the wall mounted type the purpose in providing.

#### ● Structure & Operation of the Invention

The anion air conditioning system using the titanium dust collecting plate according to the invention for achieving the purpose described in the above the dust collecting plate and negative plate are formed with the titanium material quality as to the main body, consisting of the front side case and rear case and the electronic circuit part, controlling all supplied inside the main body and the negative plate which is equipped in the output end of the electronic circuit part and generates the minus voltage and the air cleaner consisting of the dust collecting plate which is equipped in the negative plate and generates the negative ion. And the intensity of infestation of the ozone generated in the activated charcoal coating layer, the dust collecting plate and the negative plate collecting the ceramic coating layer, emitting the far infrared rays to the surface of the dust collecting plate and the odor molecule included in airborne is reduced to. It is characterized that the conductivity graphite layer increasing the intensity of infestation of the deionized water ion is formed.

Moreover, it is preferable that a plurality of air outlets of the front side case the suction side in which the inlet in which the air which the designated angle is curve-cut in the opposite direction of the eject direction of vent and is polluted is inhaled to both sides of the escape surface the formed escape surface is prepared is formed is formed. And the inducing path in which the air inhaled to the suction cubic face is moved to the dust collecting plate and cathode palm in the inner side of the rear case is formed.

The anion air conditioning system using the attached titanium dust collecting plate according to the invention is hereinafter particularly illustrated.

In describing the present invention, the definition defined terms are given in consideration of the function at the invention. It is understood as the meaning of limiting the technical component of the present invention since being changed according to intention or the conventions of the technical engineer engaged in the relevant field etc. and this will not. And the same diagram symbol is given about the same element as moreover, the prior art. The detailed explanation about that omits.

Figure 3 is a perspective view showing the anion air conditioning system using the titanium dust collecting plate according to the invention. Figure 4 is an example diagram showing the dust collecting plate withdrawal condition of the anion air conditioning system using the titanium dust collecting plate according to the invention. Figure 5 is a cross-sectional view showing the dust collecting plate of the anion air conditioning system using the titanium dust collecting plate according to the invention. It is the cross-sectional view showing the air stream state of the anion air conditioning system using the titanium dust collecting plate according to the fig. 6 silver the invention.

As shown in the figure, the anion air conditioning system (100) using the titanium dust collecting plate according to the invention is combined in the rear side of the inlet (114), in which the polluted atmosphere is inflowed and the front side case (110), in which the vent (112) in which the air cleaned up is exhausted is equipped and front side case (110) and it forms the movement route of the air flowed in into the inlet (114). The main body (100) formed owing to the rear case (120) in which the barrier groove (non illustration) for being set at the wall etc. is formed is prepared.

Moreover, the dust collecting plate (130) for the Clean of the air flowed in and negative plate (140) are prepared inside the main body (100) formed owing to former, and rear cases (110, 120). And the inducing path (124) is formed so that the air flowed in into the inlet (114) formed in the front side case (110) pass through the dust collecting plate (130) and negative plate (140). The electronic circuit part outputted is the low voltage inputted in the inside which is not illustrated comprised of the high voltage.

As to the front side case (110), the escape surface (111) in which a plurality of discharge holes (112) is formed is formed. The suction side (113) in which a plurality of intake cavities (114) inhaling the air which both sides of the escape surface (111) is polluted is formed is formed. And it is curve-cut in the designated angle about the escape surface (111) so that it prevent from the atmosphere ejected to the discharge hole (112) formed in the escape surface (111) being inflowed and the suction side (113) is formed. And the slide groove (115) in which the inner side of the front side case (110) is the dust collecting plate (130) inserted with slide and which is fixed is faced and the atmosphere is formed. And the electronic circuit part (non illustration) giving the predetermined voltage to the dust collecting plate (130) and negative plate (140) is formed in the lower part. The electrode portion (non illustration) which connects the electronic circuit part and dust collecting plate (130) when the dust collecting plate (130) is inserted with slide is formed.

As to the rear case (120), in order to be combined in the rear side of the front side case (110) the rear side is formed into the shape corresponding to the rear side of the front side case (110). And the inducing path (124) in which the inhaled air is moved from a plurality of intake cavities (114) formed in the front side case (110) is formed. And the moving hole (125) in which the air moved to the inducing path (124) is moved to the dust collecting plate (130) and negative plate (140) is formed. A plurality of negative plates (140) is installed in the end part of the moving hole (125).

Moreover, the insertion part (101) in which the grip portion (131) in which the dust collecting plate (130) is fixed on the top of the front side case (110) and rear case (120) is inserted and which is fixed is formed.

The dust collecting plate (130) is formed with the sheet form in which a plurality of through-holes (133) is formed of square. The material is prepared with the titanium material quality. And the ceramics and activated charcoal are coated on the surface with the predetermined thickness. Here, the ceramic coating layer (134) play a role of removing odor molecules which prevent the oxidation of the dust collecting plate (130) of the titanium material quality and it lengthens the lifetime, and moreover, the negative ion is generated and it emits the far infrared rays, and the activated charcoal coating layer (136) is included among the air when bad smells included among the air are passed to the interval of the negative plate (140) and dust collecting plate (130).

Moreover, the outermost layer of the dust collecting plate (130), the intensity of infestation of the deionized water ion forming the conductivity graphite layer (138) and minimizes the generation of the generated ozone in the ionization of the electronics and is generated can be increased. And the negative plate (140) the sharp anode pin (142) is formed predetermined. And it is formed with the same material as the material forming the dust collecting plate (130).

As shown in the above, it was particularly described about the preferred embodiment of the present invention. However, the invention is the man having the normal knowledge as to the technical field belonging. If it is the case, while not being out of the spirit of this invention and the range defined in the attached claims, the invention is variously changed and it will be able to perform. Therefore, the technology of the change silver the invention of the embodiment to the front of the present invention cannot be deviated from.

#### ■ Effects of the invention

As shown in the above, the anion air conditioning system using the titanium dust collecting plate according to the invention has the effect that the dust collecting plate and the negative plate used for the air cleaner are formed into the titanium material and the production of the ozone is to the utmost suppressed. The ozone has the effect forming the ceramics, and the activated charcoal and conductivity graphite layer on the exterior of the negative plate and dust collecting plate and can prevent the oxidation of the negative plate and dust collecting

plate. And the location of the inlet in which the moreover polluted air is inhaled is altered and it is usable, the various the interior effect can be created through the wall mounted type.



#### Scope of Claims

##### Claim 1 :

The anion air conditioning system using the titanium dust collecting plate, wherein the dust collecting plate as to the main body, consisting of the front side case and rear case and the electronic circuit part, controlling all supplied inside the main body and the negative plate which generates the minus voltage it is equipped in the output end of the electronic circuit part and the air cleaner consisting of the dust collecting plate which is equipped in the negative plate and generates the negative ion and negative plate it is formed with the titanium material quality; the intensity of infestation of the ozone generated in the activated charcoal coating layer, the dust collecting plate and the negative plate collecting the ceramic coating layer, emitting the far infrared rays to the surface of the dust collecting plate and the odor molecule included in airborne is reduced to; and the conductivity graphite layer increasing the intensity of infestation of the deionized water ion is formed.

##### Claim 2 :

The anion air conditioning system using the titanium dust collecting plate wherein as to claim 1, the suction side in which the inlet in which a plurality of air outlets of the front side case of the air which the designated angle is curve-cut in the opposite direction of the eject direction of vent and is polluted is inhaled to both sides of the escape surface the formed escape surface is prepared is formed; and the inducing path in which the air inhaled to the suction cubic face is moved to the dust collecting plate and cathode plate part in the inner side of the rear case is formed.



#### Drawings

Fig. 1

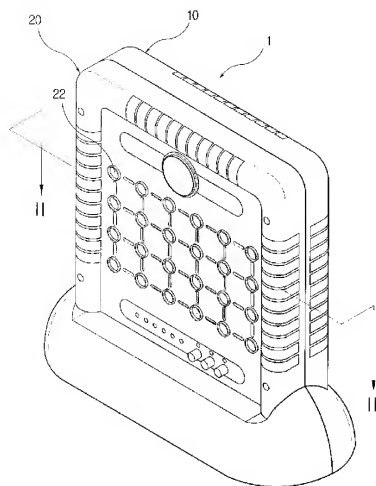


Fig. 2

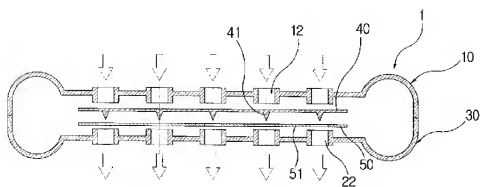


Fig. 3

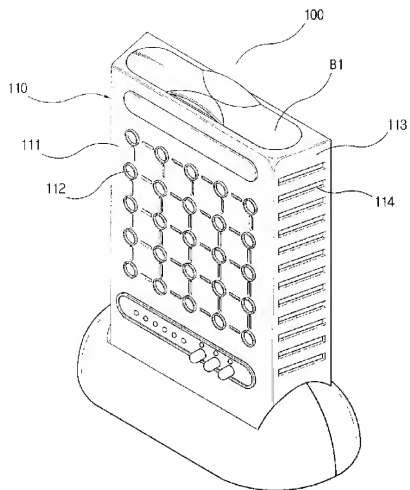


Fig. 4

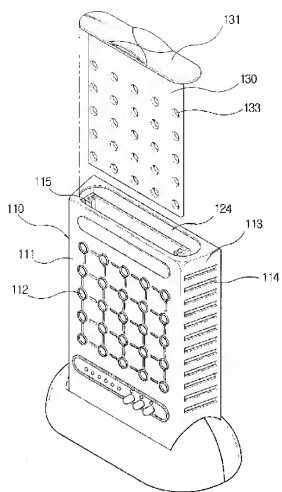


Fig. 5

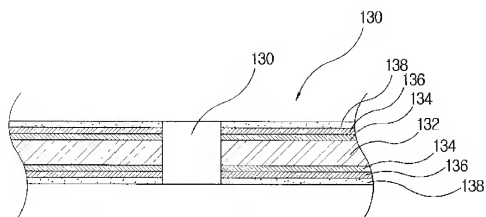


Fig. 6

